



# ATCO

# NEWSLETTER

VOLUME 4 NUMBER 1

JANUARY 1987

## ATCO NEWSLETTER REAPPEARS!

After an absence of many months, the ATCO Newsletter is back in business again. Many of you have missed the newsletter and have wished to see publication resumed. Here it is with a new look, interesting articles, and information. Please read the editorial on page two and complete the ATCO Membership Application which you will find on page nine.

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The ATCO Newsletter is the official publication of a group of television amateurs known as "AMATEUR TELEVISION IN CENTRAL OHIO" and is published in January, April, July, and October.

Membership in ATCO is open to any FCC licensed radio amateur who has an interest in amateur television.

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## AN EDITORIAL

Amateur TV in Central Ohio hasn't died - yet! But something should be done to get more life into the hobby, don't you agree?

As a first step, and we hope it is not the last, we are publishing a newsletter that may spark a little interest among those who have in the past and among those who are now transmitting video through the Columbus and Central Ohio skies.

ATCO (Amateur Television in Central Ohio) has survived for several months without elected officers, and we believe the present situation indicates we can continue on an informal basis. Why burden a few when all of us working together can create the conditions that will make it possible for us to enjoy our hobby?

We think ATVers are a special group of mature radio amateurs who have proven that they can enjoy an occasional get-together (maybe three or four times a year) which has a purpose without the formality associated with a structured organization.

If it is your belief that no one person should carry the load for ATCO, then let's consider spreading the effort to keep the "gang" interested in and enjoying ATV. We can do this by each of us volunteering to handle the "Tuesday Night ATV Net" a couple of times a year and contributing to the "ATCO Newsletter" (you choose your own subject pertaining to some feature of ATV - technical, personal observations, humorous, or whatever).

Since "bleep" is necessary to cover the cost of printing the newsletter, pay the postage, and for incidental expenses related to publication, we will require a modest voluntary contribution from each person who wishes to continue to receive a copy of the "ATCO Newsletter." The suggested amount is ten dollars annually, and we expect to provide refreshments at our "wingdings" without any additional charge.

Present plans are to publish the "ATCO Newsletter" four times each year (January, April, July, and October). Therefore, we must have newsletter material from each of you if we are to maintain our publication schedule.

Who the heck volunteered to do the "ATCO Newsletter?" I did!

WARREN - KABGZQ

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## PIZZA PARTY?

Dick, WBRVH, has suggested a gathering of the Western and Central Ohio ATVers. How about a Pizza Party? Let Bill, WBSURI, know if you're interested.

## A RF/VIDEO LINE SAMPLER/MONITOR

A need exists to monitor the modulated RF output of television transmitters to make various adjustments. The line sampler allows the detection of the RF envelope and provides a low impedance output for scope waveform observation and/or to drive a closed circuit TV monitor for direct picture analysis. It makes the sync-to-video ratio adjustment easy and precise.

The circuit consists of a RF line sampler, a modulation detector, and an impedance-matching Darlington emitter-follower stage. The output is approximately 1.0 volt across 75 ohms, sync negative. The video output is wide band in nature and provides a high resolution picture for direct viewing pleasure.

Another output with an external meter measures relative power output. The circuit operates on 12 to 15 volts dc at about 20 mA. (Prepared and submitted by W8DMR)

Fig 1-SCHEMATIC DIAGRAM OF THE LINE SAMPLER

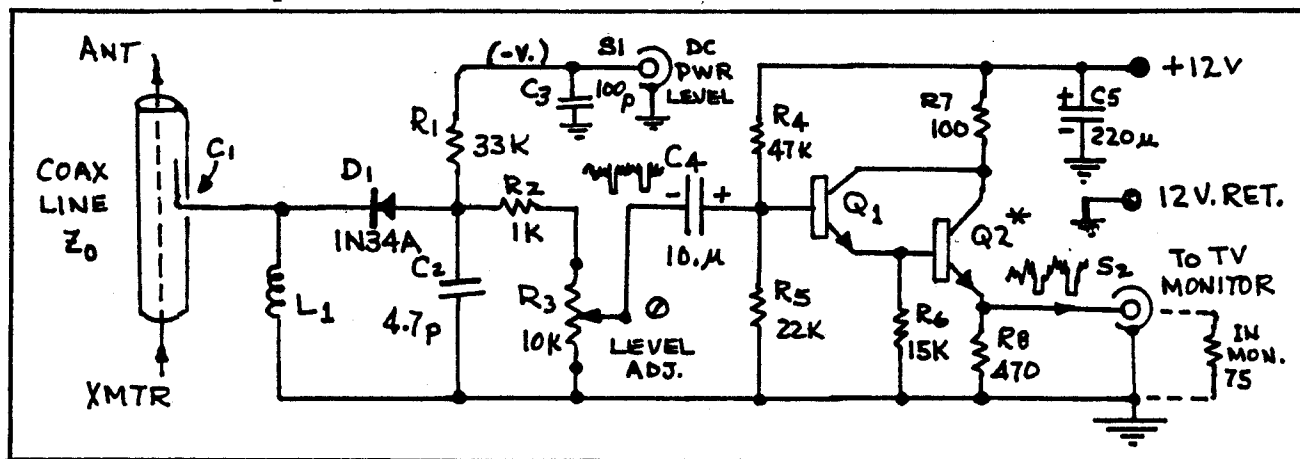


Fig 2-PARTS LIST FOR LINE SAMPLER

R1 - 33 k ohm, 1/2 watt	INPUT RESISTOR	RS-271-040
R2 - 1 k ohm, 1/2 watt	FEEDBACK RESISTOR	RS-271-023
R3 - 10 k ohm, 1/8 watt	LEVEL ADJ POT	RS-271-335
R4 - 47 k ohm, 1/2 watt	BIAS RESISTOR	RS-271-042
R5 - 22 k ohm, 1/2 watt	BIAS RESISTOR	RS-271-038
R6 - 15 k ohm, 1/2 watt	BASE RESISTOR	RS-272-036
R7 - 100 ohm, 1/2 watt	COLLECTOR RESISTOR	RS-276-012
R8 - 470 ohm, 1/2 watt	EMITTER RESISTOR	RS-276-019
C1 - 1 pF, ins. wire near coax center lead	FABRICATE	RS-272-120
C2 - 4.7 pF, ceramic cap.	RF BYPASS	RS-272-123
C3 - 100 pF, ceramic cap.	RF BYPASS	RS-272-1436
C4 - 10 uF, 16 volt cap.	COUPLING CAPACITOR	RS-272-956
C5 - 220 uF, 16 volt cap.	DECOUPLING	RS-276-1123
L1 - 1.0 uH, AWG #26	10 TURNS, 1/4" DIA.	RS-276-2009
D1 - 1N34A diode, ger.	DEMODULATOR	RS-276-2009
Q1 - 2N2222 NPN, bipolar	EMITTER FOLLOWER	FABRICATE
*Q2 - 2N2222 NPN, bipolar	LINE DRIVER	RS-278-105
*HS - heat sink for Q2	COOLING	RS-278-201
S1 - connector, BNC	RF LEVEL, DC	RS-276-150
S2 - connector, SO-239	VIDEO OUTPUT	RS-276-548
PC - pre-drilled PC board	PARTS MOUNTING	
SK - transistor sockets	OPTIONAL, 2 REQUIRED	

## ATCO NEWSLETTER MAILING LIST

K8AEH Wilbur Wollerman 1672 Rosehill Road Reynoldsburg 43068	WB80TH Perry Yantis 1850 Lisle Avenue Obetz 43207
W8AER David Sears 1678 Kaiser Drive Reynoldsburg 43068	W8BQU Robert Dervin 10416 Taylor Sta. Rd. SW Reynoldsburg 43068
W8CCW John Ferrell 3722 Wagner Court Grove City 43123	W8RMC Arthur Towslee 180 Fairdale Avenue Westerville 43081
W8DMR William Parker 2738 Floribunda Drive Columbus 43209	W8RUT George Morris 3181 Gerbert Road Columbus 43224
N8DUK Ronald Reynolds 4642 Glengate Drive Columbus 43232	W8RVH Richard Goode 9391 Ballentine Road New Carlisle 45344
N8EKB Ronald Teal 10680 Marie Lane NW Pickerington 43147	W8RZG Corwin Miller 4966 Haughn Road Grove City 43123
W8E0Y John Schlaechter 3199 Lewis Road Columbus 43207	W8TTE Philip Morrison 154 Llewellyn Avenue Westerville 43081
W8FRQ William Ennis 146 South Weyant Avenue Columbus 43213	N8BU Philip Brooks 669 South Kellner Road Columbus 43209
W8FWQ Christopher Vojsak 2050 Ellington Road Columbus 43221	W8BURI William Heiden 4435 Kaufman Road Plain City 43064
K8GZQ Warren Duemmel 3488 Darbyshire Drive Columbus 43220	K8YAH Ronald Vanke 5094 Longrifle Road Westerville 43081
W8JEN Robert Mills 6843 Halligan Avenue Worthington 43085	K8ZNY Thomas Taft 386 Cherry Street Groveport 43125
K8JGY Frederick Yost 330 Dellfield Way Gahanna 43230	

To be sure you receive the April 1987 issue of the ATCO Newsletter, please complete the ATCO Membership Application on page nine.

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### OUR CONTRIBUTORS

Thanks to the following for contributing to this issue of the ATCO Newsletter:

Bill, W8DMR, for submitting two articles - "A RF/Video Line Sampler/Monitor" and "Transmission Line Sampling;" Bill, W8BURI, for the report on his ATV DX activities; and Bill, W8FRQ, for information regarding "NTSC Parameters" and his "Arithmeticker."

## TRANSMISSION LINE SAMPLING

Sampling the RF field flowing in a transmission line is fairly easy. It is a matter of inserting a short section of transmission line between the transmitter and antenna. The main idea is to make certain that the sampling section does not disturb the impedance of the transmission line. The ideal situation is to keep the transmission line impedance electrically constant.

To keep the impedance discontinuities minimal, the physical ratio of the outer and inner conductor sizes must provide the proper impedance and be equal to that of the transmission line sampled. The formula for calculating the impedance based upon the conductor sizes using air dielectric is:

The impedance in ohms is,  $Z_0 = 138 \times 10 \log \frac{\text{outer inner diameter}}{\text{inner outer diameter}}$

Ratios of 2.304 and 3.496 provide 50 and 75 ohms respectively.  
(Prepared and submitted by WBDMR)

FIG 1-INDUCTIVE LINE SAMPLER CONFIGURATION

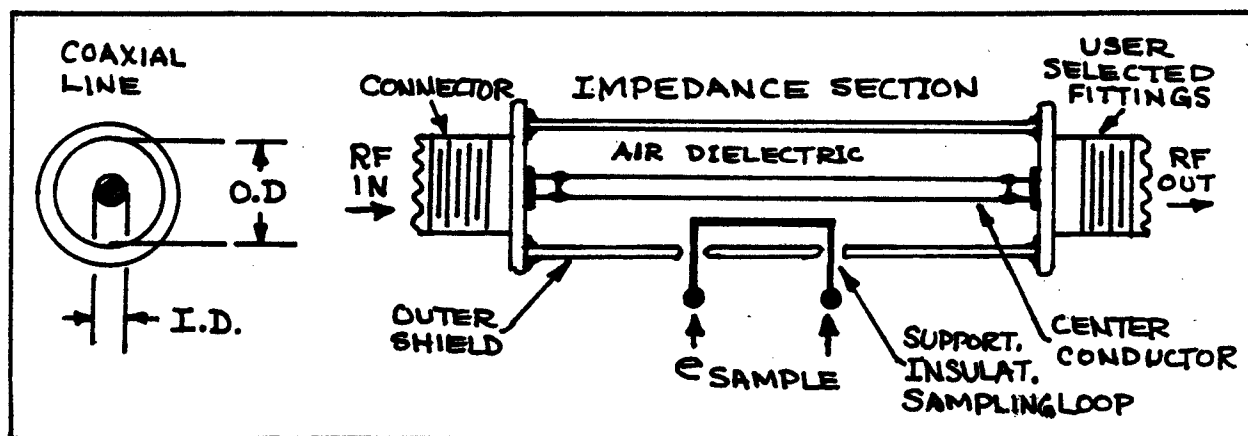


FIG 2-LINE SAMPLER IMPEDANCE PROGRAM

```

100 CLS 'CLEAR SCREEN
105 PRINT
110 INPUT "ENTER OUTER INNER DIAM.  ";OD
115 PRINT
120 INPUT "ENTER INNER OUTER DIAM.. ";ID
125 PRINT
130 ZO=138*LOG(OD/ID)/LOG(10)
135 ZO=INT(ZO*10+.5)/10
140 PRINT "LINE SAMPLER IS";ZO;"OHMS."
145 PRINT
150 PRINT "CALCULATE AGAIN (Y/N)"
160 K#=INKEY$;IF K#="" THEN 160
165 K=ASC(K#);IF K=89 THEN 105 ELSE 170
170 K=ASC(K#);IF K=78 THEN 175 ELSE 150
175 CLS:END
    
```

Test example: let OD=0.375 and ID=0.1072.  
Ans. = 75.05 ohms.



## NTSC PARAMETERS

The following NTSC (National Television Standards Committee) parameters might be of help to those ATV enthusiasts who are interested in keeping their pulses on the nose.

Listed below are the nominal values used by the TV broadcast engineer to check these pulses:

Vertical Line.....16.6 millisc.  
Horizontal Line.....63.5 microsec.  
Vertical Sync Width.....190.5 microsec. 3H  
Horizontal Sync Width.....4.75 microsec. .075H  
Equalizing Pulse Interval.....190.5 microsec. 3H  
(There are two of these intervals in the vertical blanking period, one before and one after the vertical sync pulse.)  
Equalizing Pulse Width.....2.35 microsec.  
Vertical Interval.....1.22 millisc. 18-22H  
Burst Width.....2.25 microsec. 8 cycles 3.58 MHz  
Breezeway.....0.58 microsec.  
(The Breezeway is the distance between the end of the horizontal back porch and the start of the color burst.)

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## EDITORIAL POLICY

ATCO members are encouraged to submit articles which are related to amateur television for publication in the ATCO Newsletter. Technical articles should be accompanied by schematic diagrams and any required illustrations.

Contributions may be typed or hand written and will be edited for meaning and clarity.

Articles, letters, cartoons, or other material containing profane language or obscenities will not be accepted for publication.

All material for the ATCO Newsletter should be submitted to the ATCO Newsletter Editor, KA8GZQ, and must arrive prior to the 15th day of the month preceding publication date.

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## ARITHMETICKER

WBFRQ turned on his ATV transmitter at noon for a shakedown check and turned it off at 3 p.m. He then found that the clock he was using had lost ten minutes each hour. How long in correct time was his transmitter on the air?

The answer will be published in the April 1987 ATCO Newsletter.

## ATV DX REPORT

(This account of DX activities was submitted for publication by Bill, WB8URI. Map on back page is by Bill, WBDMR. - Ed.)

On Monday 24 November 1986, I arrived at home and found the commercial TV band to be open. After making some noise on 147.45 MHz, I learned that some of the Columbus ATVers had already worked the Western Ohio ATV stations. With the hope I had not missed the activity with such good band conditions, I went down to 144.34 MHz and called CQ. About 45 minutes later, KA9TGX from Lafayette, Indiana, answered me. This occurred at approximately 11 p.m., and I didn't sign off until 3:30 a.m. on 25 November. After four hours of sleep, I found the band still open.

Thinking I had seen it all, I was surprised to find an even better opening on Thursday and Friday 27-28 November. Although many of the same stations were received, some were seen better on Thursday than on Monday, and more new contacts were also made. Listed below are the stations that were viewed or worked:

STATION	LOCATION	RCVD	SENT
KA9TGX	Lafayette, IN	P5	P5
K9MBK	Fort Wayne, IN	--	P2-1/2
N9GA	Canton, IL	P3	P2
WB000L	nr St. Louis, MO	P1	--
KOIWA	Burlington, IA	P1	P2-1/2
K9WZB	Hebron, IN	P5	--
W3POS	Erie, PA	P3	P1
N9AB	Ivanhoe, IL	P1	--
WB0ZJP	St. Louis, MO	P2-1/2	P2-1/2?
WB9LHD	Springfield, IL	P1-1/2	P1-1/2
WA9MPH	-----, IN	P1	--
W3PVH/R	Acme, PA	P2	--
K3IBD	Bethel Park, PA	P2	P3
W3QNI	Bethel Park, PA	P2	P3
KA3JSD	-----, PA	P2	P3

The above P-Reports are maximum since some stations were worked more than once. All of the "3 Call Area" contacts with the exception of W3POS were worked through the vertically polarized Pittsburgh Repeater (439.25 MHz in, 421.25 MHz out). The 2 meter frequency used for the Pittsburgh Repeater was 146.67 MHz -600. All other stations were worked or relayed on 144.34 MHz and 439.25 MHz. Video recordings were made of these contacts. As of this writing, a QSL card has been received from WB9LHD.

I would like to remind everyone that there are morning schedules between Columbus, New Carlisle, and Indianapolis at 7:45 a.m. on 144.34 MHz and 439.25 MHz.

## ATCO TUESDAY NIGHT NET

A long-standing activity of ATCO is the Tuesday Night Net which meets at 8 p.m during the fall and winter months and at 9 p.m. when daylight savings time is in effect.

Starting in January 1987, the ATCO Net will meet formally on the first and third Tuesday of each month. On the other Tuesdays of the month, the net will be informal. ACTO members interested in taking the net on a particular date should contact Bill, WB8URI.

In the past, very few members have volunteered to act as net-control. If you are renewing your membership in ATCO, or if you are joining for the first time, please consider volunteering as net-control. A statement on the ATCO Membership Application blank appearing in this issue of the ATCO Newsletter provides an opportunity for you to volunteer.

Running the net is not difficult and should prove to be an enjoyable experience.

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## ATCO MEMBERSHIP APPLICATION

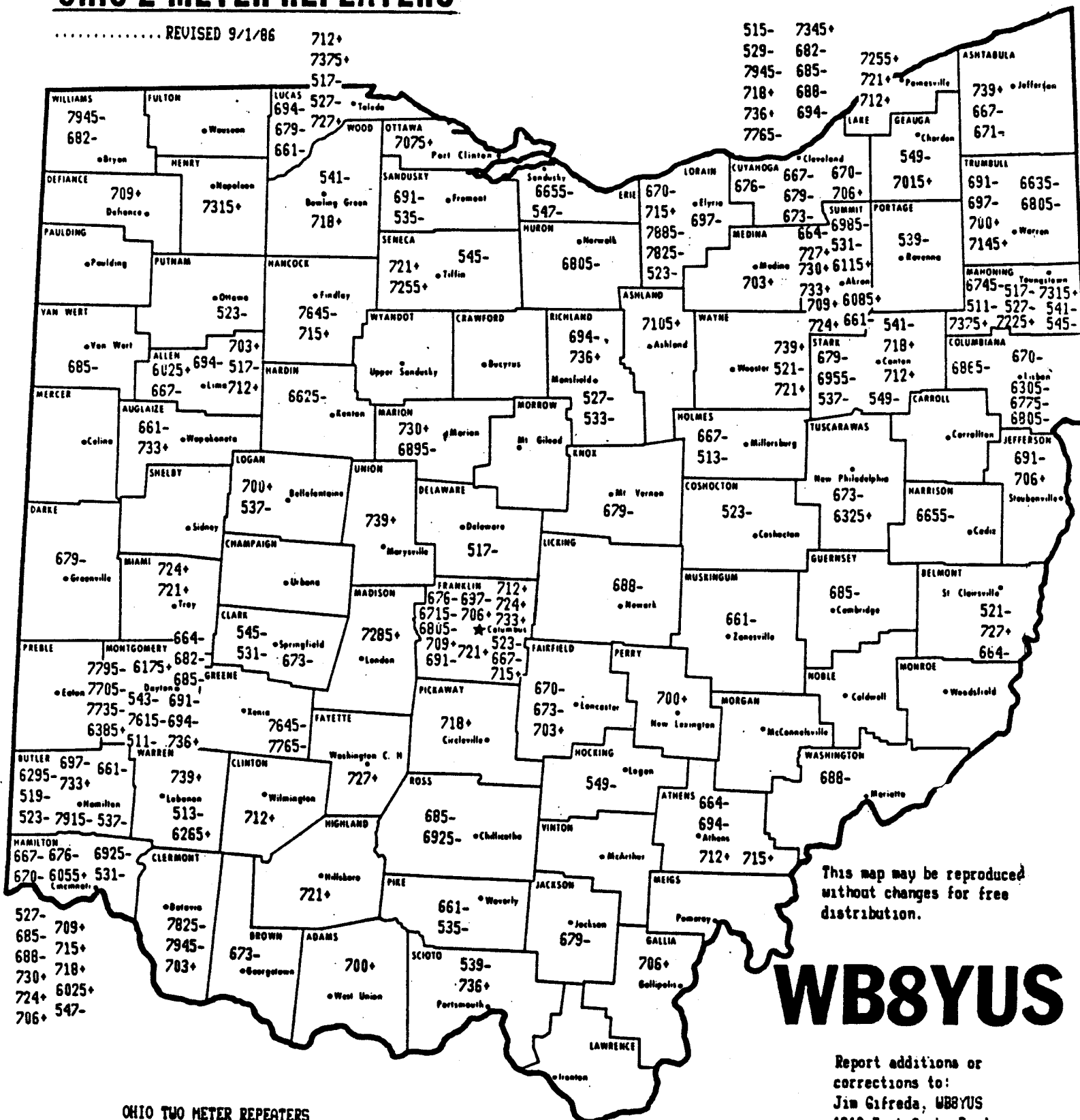
RENEWAL ☐ NEW MEMBER ☐ CHARTER MEMBER ☐ DATE.....  
NAME.....CALL.....  
ADDRESS.....HOME PHONE.....  
CITY.....STATE.....ZIP.....  
PLACE OF EMPLOYMENT.....BUS. PHONE.....  
HAM INTERESTS.....LICENSE CLASS.....  
I WILL TAKE ATCO NET-CONTROL TWICE A YEAR [YES] [NO].....  
I WILL SUBMIT NEWSLETTER MATERIAL TWICE A YEAR [YES] [NO].....  
DUES PAYMENT OF \$10 YEAR INCLUDED [YES] [NO] CHECK ☐ CASH ☐

MAKE CHECK PAYABLE TO WARREN G. DUEMMEL AND MAIL TO KA8GZQ, 3488  
DARBYSHIRE DRIVE, COLUMBUS, OHIO 43220.



# OHIO 2 METER REPEATERS

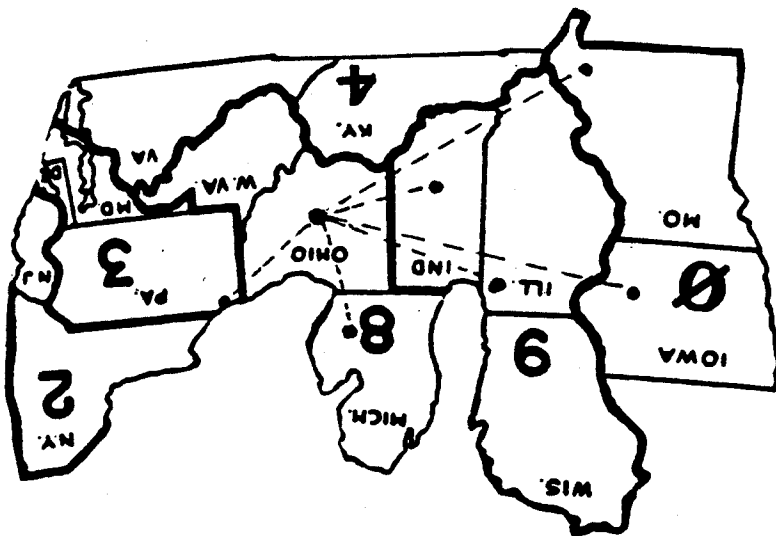
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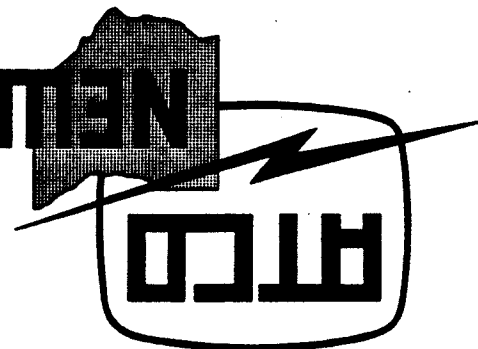
## WB8YUS

Report additions or corrections to:  
Jim Gifreda, WB8YUS  
1213 East Cooke Road  
Columbus, Ohio 43224



MAP OF WB8UR'S  
ATV DX CONTACTS  
(story on page 8)

NEWSLETTER



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